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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/507,218  
Filing Date: September 16, 2004  
Appellant(s): TANAGLIA ET AL.

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Harris A. Pitlick  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 11 February 2008 appealing from the Office action mailed 10 July 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

The provisional rejection of claims 1-17 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of

copending Application No. 11/294,569 (US 2006/0135697), Tanaglia, is hereby expressly withdrawn in view of the Terminal Disclaimer of 18 July 2007.

The provisional rejection of claims 1-17 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-13 of copending Application No. 11/100,522 (US 2005/0239666), Tanaglia, is hereby expressly withdrawn in view of the Terminal Disclaimer of 18 July 2007.

The rejection of claims 1, 3-9, 11, 12 and 15-17 under 35 U.S.C. 103(a) as obvious over Schauder (US 6,383,439), taken in view of Ooyama et al (US 6,060,551) , is hereby expressly withdrawn.

#### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

#### **(8) Evidence Relied Upon**

2003/0013623	Tse et al	1-2003
6,569,937	Foulger et al	5-2003

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tse et al (US 2003/0013623), taken in view of Foulger et al (US 6,569,937).

The reference to Tse et al teaches a method for the functionalization of ethylene/propylene or ethylene/propylene/non-conjugated diene elastomers, having monomer contents embracing those recited and claimed herein, in the presence of a hydroperoxide and shear force, with maleic anhydride. Note paragraphs [0045]-[0051] for the monomers and their respective contents of claims 3, 4, 5 and 8. Since paragraph [0052] shows a Mn of from 10,000-12,000,000, and paragraph [0057] teaches a Mw/Mn of "less than about 2," the Mw would surely embrace that recited in instant claims 1 and 7. Note paragraph [0109] for the mechanical shear applied. Paragraph [0115] teaches why one of ordinary skill in the art would know to manipulate time, temperature and RPM for the reaction. The functionalizing agent is taught as maleic anhydride at paragraph [0118], employed with hydroperoxides, as claimed herein. The contemplated temperatures are shown at paragraph [0119]. The reference teaches the use of Banbury mixers at paragraphs [0113], [0117], et al.

The reference to Foulger et al shows a shear rate produced by Banbury mixers at column 15 (lines 44 et seq.) to be "72 RPM ( $200\text{ s}^{-1}$  shear rate)." Given the teachings of manipulation of time, temperature and RPM as taught by the reference to Tse et al, the use of any particular shear rate would be prima facie obvious to an artisan of

ordinary skill. Nothing unexpected has been shown, nor can be seen in the claimed invention.

#### **(10) Response to Argument**

With regard to the rejection of claims 1-12 and 15-17 under 35 U.S.C. 103(a) as being unpatentable over Tse et al (US 2003/0013623), taken in view of Foulger et al (US 6,569,937), appellants assert the disclosure of Tse et al teaches the employment of the hydroperoxide "as a substitute for the more preferred peroxides." This is not deemed to negate patentability since the reference clearly teaches the component regardless of the characterization of "as a substitute." Further, appellants contend the reference "does not disclose functionalization of either of their copolymers of ethylene and at least one other alpha-olefin monomer, let alone with maleic anhydride or a derivative thereof as recited in claim 1. It is pointed out the reference shows the use of maleic anhydride, as herein claimed, at paragraph [0118]. The presence of the same constituents, manipulated in known manner, will predictably produce the same result. Appellants assert the reference "makes no distinction between EPM or EPDM." The claim language does not require both. The disclosure of the EPM copolymer that "may optionally contain other monomers such as non-conjugated dienes [0045-0046]" would certainly embrace EPDM, contrary to the assertion. Regardless of the Examples of the reference being limited to EPM copolymers, the reference is viewed in the entirety of its teachings, not isolated passages that appellants rely on to assert patentability. Appellants assert at page 6 of the Brief that the use of hydroperoxides (even as

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disclosed by Tse et al), “as required by the present claims, produces a different result.”

The precise definition as to what this “different result” may be is not expounded by appellants. As such, the scope of the process is shown by the teachings of the reference. Appellants contend at page 8 “(i)t is well-known that degradation, i.e., reduction of the average molecular weight, of saturated copolymers of the EPM kind may be obtained in the presence of peroxides, as said copolymers are saturated and branched, and commonly they tend, under conditions of high temperature and high shear, to break the polymeric chain through a radical route and to degrade, as correctly disclosed by Tse et al. Under such conditions, it would be very difficult for maleic anhydride or a derivative thereof to bind to the degraded EPM copolymer to functionalize it, due to the fact that the EPM copolymer does not contain olefinic unsaturated groups which may form such bonds.” It is pointed out that, appellants employ peroxide and high shear just as the reference does, and appellants’ claim 1 clearly recites EPM as a suitable constituent. Further, the reference shows a temperature for the process as “from about 120°C to about 400°C” at paragraph [0013]. The instant Specification teaches at page 6 (lines 3-6) a suitable temperature of “from 80 to 250°C,” which clearly overlaps with that of the reference. Appellants have failed to establish any criticality of shear or temperature over the teachings of the reference. It is pointed out that the high shear employed herein, as recited in claim 1, would produce the identical effect that the shear of the Banbury mixer of the Tse et al reference. Further, inclusion of the disclosed hydroperoxide would have the same effect as that

recited herein. And, lastly, the addition of the maleic anhydride taught by the reference would have the same effect as that recited and claimed herein.

Appellants contend the reference does not address "Applicants' surprising solution to the problem of increased molecular weight resulting from the use of peroxides...with a high shear." This is contrary to the assertions proffered with respect to the reference at page 6 of the Brief as to a "different result" obtained in Tse et al of a degraded polymer. Known constituents are employed in a known manner in Tse et al, resulting in a predictable result.

It is pointed out that the patent to Foulger et al is relied upon solely to show the shear rate of a Banbury mixer, as employed by the reference to Tse et al.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Nathan M. Nutter/

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